

Program Letter

Bureau of Storage Tank Regulation
February 2001

Setback location for transfer connections

NFPA 30, 5-4.4 (1987 edition) or section 5-6.3.1 (1996 edition) states; "Tank vehicle and tank car loading and unloading facilities shall be separated from aboveground tanks, warehouses, other plant buildings, or the nearest line of adjoining property that can be built upon by a distance of at least 25 ft (7.6 m) for Class I liquids and at least 15 ft (4.6 m) for Class II and Class III liquids, *measured from the nearest fill spout or transfer connection*. These distances may be reduced by utilizing fixed fire protection systems, dikes, fire-rated barriers, or a combination of any of these. Buildings for pumps or shelters for personnel shall be permitted to be a part of the facility." The 1996 edition has included the setback reduction criteria in a separate paragraph, section A-5-6.3.1. It should also be noted that the former code IND 8.41 (6-3) had the same requirements.)

The reason for the separation, as noted in the NFPA 30 Handbook, is to increase the chance of controlling a fire originating *at a tank vehicle* before it spreads to nearby tanks or buildings. The



fill spout is typically located at the loading rack and is the point at which the product transferred from bulk storage enters the compartment of the delivery truck. The transfer connection is typically near the loading rack or other convenient transport loading or unloading location. A

transfer hose is utilized to make the connection between the transport and the storage system. Because the transfer hose may be fixed at the storage system or carried on the transport the transfer connection is the point at which the transfer hose connects to the transport compartment valve connection. The NFPA standard approaches the setback from the class of product being loaded or unloaded. It is assumed that all petroleum bulk plants will be storing and transferring Class I liquids, therefore the 25' dimension is the basic setback distance considered at a typical marketer bulk storage facility. The setback measurement is taken from a plane at the point of transfer horizontally to the vertical plane of the respective exposure. Historically, the Bureau of Storage Tank Regulation has allowed no more than a 10 % margin of error in setback distances unless other fixed fire protection or other safety features are provided.



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For the purposes of definition, a fill spout is typically associated with the transfer of product through a nozzle. Nozzles are almost exclusively utilized in the transfer of product to the smaller transport trucks from the bulk loading rack. Whereas a transfer connection may be utilized during the tank filling or truck loading process. In this day, a rigid "tight fill" camlock type connection is utilized during this process.

The loading and unloading facilities also are required per NFPA 30 to be provided with a means to contain spills. Again, this requirement is to prevent the spread of an uncontrolled spill from traveling beyond the loading or unloading area and exposing surrounding equipment and buildings, especially those that are not a part of the immediate facility. Also note, the separation distances are from property which can be built upon or from the *opposite* side of a public way.

As stated in the commentary section of NFPA 30, the *Authority Having Jurisdiction* may allow reduced separation where there is suitable protection for exposures. Acceptable reduction in

setback has previously been determined during the plan review process and formalized through plan review and approval using the judgement of the plan reviewer utilizing the concepts provided in the code sections that are the subject of this program letter. This process has been modified and is addressed in a previous program letter titled Establishing Setback Alternatives at Bulk Plant Facilities.

Considerations for determining reduced setbacks resulting from suitable protection include the assessment or factoring of numerous criteria. Particular attention is given to specific hazards associated with tank trucks and the loading or unloading process. A current trend in storage facility design is that facilities are installing several containment areas to maintain separation between tanks, facilities, and the transport. Separate containment systems for the respective entities of the bulk plant facilities aid in the overall safety and reduce or prevent any spilled liquid from traveling beyond the loading or unloading areas and exposing surrounding equipment and buildings. In conjunction with the containment, suitable bonding and static protection is addressed, along with the fact that many of the existing tanks are being retrofitted with updated components and technology or old tanks are replaced with new tanks. Loading rack construction, vehicle impact provisions, valve materials and electrical utilities are all addressed in the assessment.